

Practical Observations
UPON
AMPUTATION,
AND THE
AFTER-TREATMENT.

By EDWARD ALANSON,
SURGEON to the LIVERPOOL INFIRMARY.



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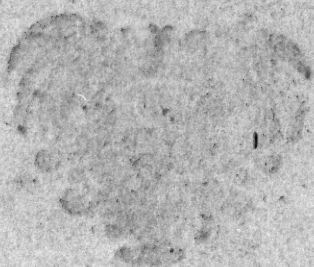
Practical Observations

AMPHETAMINE

AFTER-TREATMENT

BY EDWARD ALANSON

LECTURE TO THE LIVERPOOL LECTURE



LONDON

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MACEKILL



*To the President, Treasurer,
and Trustees of the Liver-
pool Infirmary.*

GENTLEMEN,

I Eagerly embrace the Opportunity which the present Publication affords, to acknowledge the Honor you conferred upon me, by electing me to the Office with which I have, by your Partiality, been several Years intrusted; and to inform you, that this my Station has enabled me to make some Surgical Observations, which I have Reason to believe will prove (particularly at this Juncture) very beneficial to Mankind.

I beg Leave to present to you a Remark, which must give you Pleasure. If in your public Infirmary the Objects are not only treated with great Humanity and Success, but the Art of Surgery likewise improved, it plainly appears, that the Utility of

DEDICATION.

these Houses is by no Means confined to the Objects they contain, but is extended to all Ranks, Nations and Ages.

You must have observed with Pleasure, that necessary Unanimity which prevails amongst the medical People within your Walls.

To you, Gentlemen, who have the Welfare of this Infirmary so constantly in View, these Sheets are addressed; with the fullest Assurances on my Part, that while I have Health, you may always command my utmost Attention, and in Testimony of that Respect,

I remain,

Your most obedient,

Basnett Street,

1779.

humble Servant,

EDWARD ALANSON.

P R E F A C E.

WHEN we attempt to introduce any new and important Deviations, from the usual Mode of Practice, into general Use, and particularly in a Point of such Consequence, as the directing almost a total Change in the Mode of performing and after-treating one of the principal Surgical Operations, the Public have a Right to be fully acquainted with the Author's Reasons and Motives for such Attempt; and such Trials should likewise previously have been made, as are sufficient to convince, that what we recommend, will bear the Test of general Experience.

I have taken some Pains to inform myself what other Practitioners are doing in other Hospitals, and from such unprejudiced Authority, as I can fully rely upon, I am convinced, that
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too little Skin is saved, the Muscles are generally divided by a perpendicular circular Incision, no Union is attempted by the first Intention, the Parts are dressed with dry Lint, and by many the Arteries tied with the Needle, including Nerves, Veins, and the adjacent Parts.

Hence will more frequently arise Spasms, brisk Symptomatic Fever, Hæmorrhage, large Discharge of Matter, Retraction of the Muscles, and Exfoliation: the Treatment which it is the Intention of this little Essay to recommend, may be considered as a powerful Preventative of these disagreeable Symptoms; and I am assured, our Cures are compleated in half the Time requisite, under the common Treatment: These are my Reasons for addressing the Public upon this Subject.

I most earnestly recommend the Treatment here described, to the
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P R E F A C E. vii

Consideration of the Army and Navy Surgeons; no doubt there are Men of Experience and Judgment in these Stations; but I am sorry to observe, that I have seen some late Instances of their Treatment, and heard of others, where so little Attention has been directed to save a sufficient Quantity of Skin, that the Bones have projected, and the Cures proved uncommonly tedious.

The Facts here described may be relied upon, the Practice recommended is the result of a considerable Experience, for nine Years, in a public Hospital, where the Treatment is inspected by, and fully known to others. If I have expressed myself in such a Manner, as to enable the Reader to put in Practice the Means recommended, I have fully attained what I aimed at; if I have made a Step towards the Improvement of Surgery, I shall be much pleased; ~~an~~ Art, that,
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when practised with Humanity, Honor and Judgment, is an Ornament to human Nature, and for its Certainty in relieving many of the most distressful Accidents, to which all are liable, must ever be considered as of the utmost Importance to the Happiness of Mankind.



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ON
AMPUTATION,
AND THE
AFTER-TREATMENT.

PART I.

On the Mode of performing the Operation.

MY Deviations from the usual Practice, consist; First, in the Mode of operating; and Secondly, in the After-treatment: I shall proceed to give as concise and clear an Account of both, as is in my Power.

First, as to the Operation, we differ relative to the Application of the Tape, the Quantity of Skin saved, and the Manner of executing the Double Incision.

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The Use of a Tape or circular Band considered.

After first viewing the Sentiments of the best modern Surgical Writers, and considering what I have to offer, I will leave the Reader to draw his own Conclusions.

“ While one of the Assistants holds the Leg, you must roll a Slip of fine Rag Half an Inch broad, Three or Four Times round it, about Four or Five Inches below the inferior Extremity of the Patella: this being pinned on, is to serve as a Guide for the Knife, which without it, perhaps, would not be directed so dextrously.” *Sharpe's Operations*, p. 226.

“ The Part is then fixed upon for making the First Incision through the Integuments, Half an Inch below which the Tape is to be passed round the Limb, (making several Turns as tight as possible,) and to be pinned. It seems to me to be the Intention of many Operators, to apply this Tape only as a Guide for



for the Knife, as directed by Mr. *Sharpe*, and to cut either above or below it, as it may happen: with this Intention, they roll it round the Limb loosely. *Heister* indeed, in his Book of Surgery, recommends the Tape to be applied tight round the Limb, in order to keep the fleshy Parts close to the Bone, his Intention being to amputate, by carrying his Incision through the Integuments and Muscles down to the Bone at once. He likewise says that the Amputation is to be made below the Tape, as does *Monro* in the *Medical Essays*. The *French Surgeons*, in their *Memoirs*, are likewise of the same Way of thinking. *Le Dran* does not apply the Tape for the Direction of the Knife, but to keep the Muscles compact and close to the Bone. I must here remark, that cutting above the Tape will prevent the Operator from being embarrassed when he is to make his Second Incision, which is to go through the Muscles to the Bone, as the Tape generally slips off, and is in the Way of the Knife, if the First Incision is made below it. Another Advantage, which arises from pulling the Tape as

tight as possible in passing it round the Limb before it is pinned, is, that the Skin will be raised from the subjacent Muscles, when the Assistant draws it up, which cannot be the Case, if the Incision is made below the Tape; but, by carrying the Knife a little above it, the Integuments will be divided without cutting into the Muscles, the Patients saved from some Pain, and a Neatness given to the Operation." *Bromfield's Chirurg. Observ.*

The last-named Author, having taken a very full View of the Subject, I have transcribed the whole Passage; and have been the more particular in this Respect, as it likewise contains the Sentiments of others. To make short of the Matter, I dare venture to assert, that whether you cut above or below the Tape; whether you consider it as a Director to the Knife, or as giving Steadiness to the Parts; or with whatever apparent View you apply it, that it may be advantageously laid aside; as the following Method appears upon Trial, in every Respect superior.

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The mental Sufferings of the Diseased will ever be considered, by the humane Practitioner, as highly intitled to his Attention; and we cannot avoid observing, that after the Tourniquet is applied, every Moment's Delay detains the Patient in a most painful State of Mind, which the Application of the Tape greatly prolongs; therefore, if not attended with adequate superior Advantages, here is sufficient Reason for exploding its Use. Therefore, as soon as the Tourniquet is applied, let an Assistant grasp the Limb circularly with both Hands, and firmly draw the Skin and Muscles upwards; the Operator now fixing his Eye upon the proper Part, will make the circular Incision through the Skin and adipose Membrane, with considerable Facility and Dispatch, and the Knife will pass much quicker, in consequence of the tense State in which the Parts are supported; and the Operator's Attention not being confined to cut in the exact Direction of the Tape, will enable him to execute in Half the Time.

Hence it appears, that the Application of the Tape occasions a considerable and anxious
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State of Delay, previous to the circular Incision, and likewise is a great Obstacle to the speedy Execution of it. Now, as it is universally allowed, that the Division of the Skin is the most painful Part of Incisions in general, we are always directed to execute this Part of an Operation with Dispatch. I may likewise observe, that the leading Objects are more fully kept in View, viz. the saving as much Skin and muscular Substance, as will afterwards form a good Cushion upon the Extremity of the Bones ; and this is promoted by the Method here recommended : Therefore, I think the Use of the Tape is exploded upon rational Grounds.

On the DOUBLE INCISION.

THE Double Incision, as usually advised and practised by all the best modern Surgical Writers, is, I believe, capable of considerable Improvement ; as will evidently appear to every unprejudiced Person, that

that will take a candid View of the Subject : And this will be the most effectually accomplished, by considering the Precepts of the best Writers, and comparing them with the Reason, and Experience, I have to offer.

“ The Ligature being made according to Custom, with Mr. *Petit's* Tourniquet to stop the Blood, and the Limb being supported by two Assistants, I made a circular Incision through the Skin and Muscles, with the crooked Knife : Then ordering them to be drawn upwards, by the Assistant who embraced the superior Part of the Arm, I began the circular Turn again with the Knife, even with the Wound, cutting a second Time to the Bone, which I sawed off even with the Flesh.” *Le Dran's Surgery.*

“ The Course of the Blood being stopped, you must begin your Incision just below the Linen Roller, on the under Part of the Limb, bringing your Knife towards you, which at one Sweep may cut more than the Semicircle ; then beginning your second
Wound

Wound on the upper Part, it must be continued from the one Extremity to the other of the first Wound, making them but one Line. These Incisions must be made quite through the Membrana Adiposa, as far as the Muscles, then taking off the Linen Roller, and an Assistant drawing back the Skin, as far as it will go, you make your Wound from the Edges of it when drawn back, through the Flesh to the Bone, in the same Manner as you did through the Skin." *Sharpe's Operations*, p. 227.

"As soon as the Tape is thus applied, the Tourniquet is to be screwed tight: The circular Incision through the Integuments being made by the dismembering Knife, if any little Parts of the Integuments still adhere to the Muscles, they should be set at Liberty with the Point of it, so as that the Skin may slip easily over the Muscles. The Assistant must then draw up the Skin as high as possible, which the Operator may assist with his Fingers. The Knife is then applied close to the Edge of the Integuments thus drawn

drawn up, and carried quite through the Muscles down to the Bone, in a circular Manner as before." *Bromfield's Chirurg. Obs.* Vol. I. p. 150.

Le Dran, after the circular Incision, directs the Skin and Muscles to be drawn upwards; he then cuts through the Muscles down to the Bone. *Sbarpe*, after the circular Incision, directs an Assistant to draw back the Skin as far as it will go, and to make your Wound from the Edges of it, when drawn back, through the Muscles down to the Bone. *Bromfield's* Advice is more judicious, and agreeable to the Practice of the most eminent Operators of the present Day: His Words are, "After the circular Incision, if any little Parts of the Integuments still adhere to the Muscles, they should be set at Liberty," &c. Now if we act agreeable to the Advice of the last named Author, it is extremely uncertain what Quantity of Skin we shall save; in some Subjects more, in others less; because in some the cellular and ligamentous Attachments will yield more readily than in

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others.

others. However, it is certain not any of them save a sufficient Quantity; that is, as much as will, after the Operation is finished, fully cover the whole Surface of the Wound with the most perfect Ease; and upon this Circumstance a speedy Cure principally depends.

Bromfield's Advice is, "to draw up the Skin as high as possible," but gives us no exact Direction as to the Quantity of Skin we ought to preserve. Directions "to draw the Skin upwards," "as far as it will go," "as high as possible," do not assign the Quantity proper to be saved; therefore, it remains for future Experience to decide, what Quantity should be saved to produce the most speedy Cure.

After you have made your Incision thro' the Skin and adipose Membrane, agreeable to the foregoing Directions, the Assistant still continuing a steady support of the Parts, separate the cellular and ligamentous Attachments with the Point of your Knife, till as much Skin is drawn

drawn up, as will afterwards fully cover the whole Surface of the Wound, with the most perfect Ease. And that this may always be executed, I have fully experienced in a Variety of different Subjects.

Our next Deviation from the usual Mode of operating, is in a different Division of the Muscles, in making the second Incision.

“ The Knife is then applied close to the Edge of the Integuments thus drawn up, and carried quite through the Muscles down to the Bone in a circular Manner as before.”

Sharpe.

It would be useless to produce any other Quotation upon this Point, as the Direction is similar to that of all the best Writers, and exactly what is practised by most Operators of the present Time. Altho' the Production of a speedy Cure does not depend so fully upon this Part of the Operation, as the foregoing, the following Deviation is of considerable Importance; as will enable you to saw off the Bone, much higher than is usually prac-

tised ; and the Parts so divided, are much better adapted to cover the Bone, approximate, and unite.

Instead of applying the Knife close to the Edge of the Integuments, and dividing the Muscles in a circular Manner down to the Bone, let it be done as follows : We will suppose you are operating upon the Thigh ; apply the Edge of your Knife, under the Edge of the supported Integuments, and cut obliquely thro' the Muscles ; upwards as to the Limb, and down to the Bone ; so as to lay it bare, about three or four Fingers Breadth higher than you would by the usual perpendicular circular Incision, and continue to divide the Parts all round the Limb, guiding the Knife in the same Direction : the speedy Execution of this Incision will be much expedited, by the Assistant continuing a firm and steady Elevation of the Parts, as the Knife acts. With the Assistance of the Leather Retractor, as advised by *Gooch*, and *Bromfield*, you will now saw off the Bone higher than is usually practised, which is a considerable Advantage,

vantage, and coincides with the original intention of the double Incision: viz. to prevent a Projection of the Bone, and form a small Cicatrix.

A Stump thus formed in the Thigh, if you support the Parts gently forwards, after the Operation; viewing the whole Surface of the Wound, may be said in some Degree to resemble a Cone, the Apex of which is the Extremity of the Bone: the Parts thus divided, are obviously the best calculated to prevent a Sugar-loaf Stump.

Having given a full Description of the Deviations in the Mode of performing the Operation, I should, in Prosecution of the proposed Plan, immediately proceed to the Dressings; but will first beg Leave to make a few Remarks; which, altho' not new, yet are of the utmost Importance, and if not observed, may in some Degree frustrate our Plan of Operating and Dressing, by preventing what we have in View thro' the Whole, viz. a Union of the Parts by the first Intention.

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Now altho' this cannot be effected in a total Degree, yet it will take Place considerably ; and more so, than those who have not practised the Method, will perhaps at the first View conceive. It is of the utmost Consequence, that the Vessels should not be taken up with the Needle and Ligature, in the old Method, where the Artery, Veins, Nerves, and some of the adjacent Parts, are all included : this must ever be productive of larger Inflammation, Tension, and consequent Suppuration, besides the violent Spasms, which are the more immediate Consequence : to which may be added, the firm Hold given to the Ligatures, which frequently renders their Separation very tedious : all these are obvious Obstructions to the desired Union. When the Arteries are drawn out with the Tenaculum, and tied as naked as possible, it will be attended with very little Pain at the Time, and as little subsequent Trouble, or Interruption to the speedy union of the Parts. As to the comparative Security from Hæmorrhage, it is almost superfluous to add my Testimony, after what has been advanced, by several Modern Writers of the
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first Note: however, I shall take this Opportunity to observe, that the Tenaculum has been used in our Hospital several Years, and in my Opinion merits every Recommendation given by its most sanguine Advocates.



PART

P A R T II.

On the Treatment after the Operation.

WE will first take a View of the Directions given, by the best Surgical Writers, upon this Subject. “You must apply loose dry Lint to the Wound; or in case the small Vessels bleed plentifully, you may throw a Handful of Flour amongst the Lint, which will contribute to the more effectual stopping up their Orifices: before you lay on the Pledgit, you must bind the Stump, and begin to roll from the lower Part of the Thigh, down to the Extremity of the Stump. The Use of this Roller is to keep the Skin forwards, which, notwithstanding the Steps already taken to prevent its falling back, would in some Measure do so, unless sustained in this Manner.” *Sharpe*, p. 230.

“As Pain is a dreadful Symptom indeed, and productive of much Mischief even after an Operation is perfectly well performed, the utmost Attention is required, to prevent or
remove

remove it; and for this Consideration strait circular Bandage should be avoided, to which, from the Interruption of the Circulation of the Blood, may justly be ascribed not only Pain, but many of the most threatening consequential Symptoms. A very little Reflection will sufficiently convince us of the Absurdity of this Practice, and that, instead of preventing, it tends directly to increase the Hæmorrhage, as has been demonstrated by Professor *Monro*, one of the greatest Men of the Age. Soft Lint, evenly applied, a Plaister or Pledget spread with Unguent. Tripharm. Cerat. alb. or something of this Nature, confined with Strips of common Plaister, as has been directed, and a knitted Woollen Cap, will be found Dressing and Bandage sufficient, in whatever Limb Amputation is performed; which readily yielding to the Distension of the Vessels, upon the increased Power and Velocity of the Blood, will allow a more free and uninterrupted Reflux; consequently less Pain, Fever, and Inflammation will ensue, and a quicker Digestion of the Wound, without so much offensive Gleet as

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I have observed. Hence we may reasonably infer, that the Patient's Life will be less exposed to Danger, if strait Bandage be omitted in Amputation." *Gooche's Surgery*, Vol. II. p. 335.

Bromfield, in his *Surgery*, Vol. I. p. 172. after having described the Operation, adds, that to reap the Advantage of the double Incision, the Skin should be brought forward by an Assistant, and retained with a circular Roller; but immediately gives us the following Passage, which is a direct Contradiction to the foregoing; and leaves the Reader in doubt, whether the Result of the Author's extensive Experience is in Favor of the immediate Application of the circular Bandage, or not: we are first advised to use it, and then told that People are too solicitous in bringing the Skin forwards early, expecting it to fix immediately, but I will give you the whole Passage in his own Words. "I think, in general, we are rather too solicitous in bringing the Skin forwards early after an Amputation, expecting it is to fix
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immediately; but I have frequently seen Mischief done by the tightness of the Roller, when applied with this View, and Abscesses have been the Consequence. When the Roller is applied with this Intention below the Knee, still greater Caution is necessary, as the Edges of the sawn End of the Tibia, by the Pressure of the Bandage, have made their Way through the Integuments; therefore, we should always, in thin People, lay a Compress of Tow or Cloth on each Side of the Tibia, sufficiently thick to prevent the Roller from pressing too tight on the Bone, when we come to pass its Circles round the lower Edge of the Stump, and when the Skin is well supported by the last Circle of the Roller, we should pin the End there."

Hence you see, that whether a circular Bandage should be applied immediately after the Operation, or you are to wait, until the inflammatory State of the Parts is abated, by a kindly Digestion of the Wound, are Points, which remain very much undecided by Practitioners of the first Rank. If you apply a
circular

circular Linen Roller, sufficiently tight to detain the Skin forwards, as it will not yield to the subsequent inflammatory Tension of the Parts, it will consequently often occasion all the disagreeable Symptoms related by the foregoing judicious Authors.

In the Year 1770, I fully and attentively considered all I had seen and read upon this Subject. I had observed, that notwithstanding the Advantage of the double Incision, as usually practised, Exfoliation of the Bone, a tedious Cure, and in the Thigh particularly, Retraction of the Muscles, and a Sugar-loaf Stump, were too often the Consequence; and this, even when the Business was conducted by Men of deservedly the first Eminence in the Kingdom. If we do not apply the Roller until Digestion is formed, it clearly appears from Experience, that it comes too late to prevent these Evils, or answer any important Purpose. When the Part, to some Distance from the Surface of the Stump, have all been in a State of Inflammation, the cellular Membrane, or connecting

necting Medium, which in a State of Health, (that is immediately after the Operation,) is capable of considerable Elongation, is now so altered, by the Inflammation it has undergone, the Suppuration, and consequent Dissolution of its Texture, to which may be added, the new formed Adhesions, to which all membranous Parts in an inflammatory State are peculiarly liable, that it is deprived of its yielding Power. As a Proof of this, attempt to draw the Skin forwards, after the inflammatory Stage, and you will find the cellular Membrane scarcely yield at all, and this more particularly near the Extremity of the Stump, where the Inflammation has been the most considerable; hence at this Part, during your Attempt, the Edge of the Skin tucks in upon the Surface of the Wound, and the cellular Membrane will give Way only gradually, by being firmly retained in this Posture, with the Assistance of a firm circular Bandage. Therefore the Surgeon will be much disappointed, if he expects to bring the Skin forwards in any considerable Degree, by applying his Bandage at this Period;

Period; and the Patient will suffer Pain during its Application, and for some Time after, occasioned by the adherent Parts being supported upon the Stretch.

The following Inferences are fairly deducible from the foregoing Considerations.

1. That the Adhesion, in consequence of the Inflammation, is a most urgent Reason, why the Skin ought to be brought forwards immediately after the Operation, that it may become fixed by that Adhesion. 2. That if this could be effected, by Means that would not increase the inflammatory Tension, and the other disagreeable consequent Symptoms, a great Point would be gained. 3. That a Bandage capable of supporting the Parts, and easily yielding to the subsequent inflammatory Tension, appears to be the Desideratum.

I now reflected, that in some very painful Cases of fractured Ribs, the Parts are firmly supported by a Flannel Bandage, and that this easily adapts itself to the alternate Motions

tions of the Chest, being of a soft, yielding, elastic Nature: and hence it appeared fairly deducible, that a Bandage made of the same Materials, is the best calculated for a useful circular one after Amputation. I had at this Time a Patient at the Hospital, with a White Swelling in the Knee, who came from the Country to have the Limb amputated. Being a young Operator, and hence more particularly desirous of Success, I was led to the foregoing Reflections, which ended in a Determination to use the Flannel circular Bandage immediately after the Operation, and to watch it attentively, that if it occasioned more Pain than usual, it might be immediately removed.

The circular Incision was made as near as possible to the diseased Parts, thro' the Skin and Membrana Adiposa, down to the Muscles, the Parts being firmly retracted, the cellular and membranous Attachments yielded so considerably, that rather more Skin was saved than usual, the Muscles were divided
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by a perpendicular circular Incision, and the Bone, as is common, with the Saw.

At this Time I was not aware of the Propriety of saving as much Skin as will afterwards cover the whole Surface of the Wound, and consequently did not divide the cellular and membranous Attachments in that free Manner, which I now so urgently recommend. Upon slackening the Tourniquet a Number of Vessels discharged, the muscular Branches appeared uncommonly large, and it was thought necessary to tie thirteen Arteries at the Time of the Operation. The Skin being now brought forwards over the Extremity of the Stump, and retained there by an Assistant, a circular Roller made of the finest Swan-skin Flannel, was passed round the Body, and carried two or three Times round the upper Part of the Thigh, where it formed a sufficient Basis for the Support of the Skin and Muscles; it was then brought forwards in a circular Direction, till it arrived near the Extremity of the Stump. Although the Roller was not drawn tight,

tight, it appeared to support the Parts sufficiently, and very much to my Satisfaction: I then applied dry Lint upon the Bone, and Surface of the Muscles, but the Edge of the Wound was dressed with Pledgets, spread with a soft digestive Ointment. The Operation was performed at eleven o'Clock in the Morning, and the Patient continued as easy as usual, till five in the Afternoon; the Stump then bled so fast, that it was necessary to remove the Dressings; two Arteries discharged very fast, which had not appeared before; they were drawn out with the Tena-culum, and tied. I was much hurt with the Sufferings of the poor Patient; when the Lint, which had formed a firm Adhesion with the Surface of the Sore, was separated, he declared that he felt more from this, than any Part of the Amputation. After having tied so many Vessels, I considered him as in very little Danger of a returning Hæmorrhage, and therefore re-applied the Bandage, and instead of the dry Lint, placed the Skin over the Surface of the Wound, as far as it would.

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go, and dressed the whole with digestive Pledgets.

Upon the fourth Day after the Operation, I changed the Dressings, which all separated with the most perfect Ease; the Discharge was very small, and the Skin was over the Wound, exactly as I had left it, and the whole in a very kind State respecting inflammatory Tension. In short, the Skin soon formed such Adhesions, as fixed it where it was first placed, the Discharge was uncommonly moderate thro' the whole Cure, and by continuing the Bandage to support the Parts, with soft gentle Dressings, the Stump perfectly healed in twenty Days. The Cicatrix was in the Centre of the Stump, and so small as to be perfectly covered with a Shilling; and as the old Skin formed so considerable a Portion of the Extremity of the Stump, and there had been so small a Waste of the adipose and cellular Parts, in consequence of the small Suppuration, the whole looked very plump and full, and formed the best Cushion to walk upon I had ever seen.

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The Linen circular Bandage, as recommended and used by many, immediately after the Operation, had been laid aside in this Hospital, till Digestion, and an Abatement of the inflammatory Symptoms had taken Place, and this Practice was agreeable to the Opinion of a very experienced Practitioner, for whose Judgment I had a great Respect: so that it was with Difficulty I could reconcile myself to a Trial of the Flannel, immediately after the Operation. However, after this Trial, I began to think the Practice of Surgeons erroneous, in not attempting to bring the Skin forwards immediately after the Operation, that Adhesions might take Place: and likewise, that the Application of dry Lint opened and dilated the Surface of the Wound, and caused great Irritation; and consequently, first, large serous Discharges, and afterwards, great Suppurations: that this was going contrary to Nature, who is the most successful in restoring diseased Parts, when the least interrupted by Art. Therefore from this Time, I always applied the circular Bandage, and never teized the Wound with dry Lint,

seldom applying any Dressing, but the digestive Pledgets, except when small Vessels bled, which were not so large as to require the Ligature: I commonly restrained these with light Dossils of Lint, dipped in Ol. Oliv. et Sp. Tereb. a. p. æ. which always separated at the first Dressing.

Messrs. *Park* and *Eyon*, my Colleagues at the Infirmary, immediately pursued this Plan, and to their Accuracy and Attention, the Public are indebted for a more extensive Trial of the Bandage, and some of the subsequent Hints.

In Mr. *Bromfield's* Book of Surgery, you will find the following Passage, "The proper Dressing is dry Lint to the Bone, then a circular Piece of old Holland, to lie within the Skin on the Muscles, which is of great Service, as the rest of the Dressings will come off easily, when this is taken hold of; dry Lint should be applied on this Piece of Linnen, to fill up the Cavities in the Stump; and in Case the small Vessels should weep,
a little

a little Flour may be thrown on the Bit of Cloth, on the next Layer of Lint, which may also be assisted in its Compression, by applying a soft Bolster of Tow on the Lint: Small Pledgets of the digestive Ointment spread on Lint, should be made Use of to the Edges of the Stump, which will prevent the sticking of the Dressings."

The Interposition of a Piece of old Holland, is certainly a rational, and judicious Improvement: but if the Cavities are to be filled up, and Flour, with Compression, added, great Irritation and Dilatation of the Wound, will certainly be the Consequence.

Dry Lint appears to be a neat and convenient Dressing for fresh Wounds, as it has a Power, particularly when assisted with gentle Pressure, of speedily suppressing the bleeding from all the small Vessels; but I shall confine myself to a few Observations upon its Effects as a Dressing after Amputation; from which the Reader may draw his own Conclusions, as to the Propriety of applying it in other

other Cases, where the Parts have been recently divided.

Whether the Skin is brought forwards, and retained by a circular Bandage or otherwise, the Application of dry Lint will always be a considerable Hindrance to a speedy Cure; for altho' it does not possess an innate stimulant Quality, yet it acts as such in a great Degree, when considered in a mechanical View: It is the most proper Application we have to keep the Parts open, for when wet with the Discharge from the Wound, it is expanded by the retained Moisture like a Sponge; and hence, as it adheres to, and is within the Wound, will consequently occasion a Dilatation of its whole Surface. Hence you may easily judge what will be the Consequence of this Dilatation when counteracted by an external circular Bandage; and how Pain, Inflammation, and large serous Discharges are occasioned by filling the Cavity of an Abscess with dry Lint, after you have opened it by Incision. As the Lint adheres and then expands when applied to
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the Extremity of a Stump, hence will arise Spasms, from the Nerves being irritated; and from the same Cause acting upon the Extremity of the Vessels, we can account for the large serous Discharges from the whole Surface, and often a violent Hæmorrhage from the larger Vessels. That this is the real State of the Matter, I am as well convinced as I possibly can be by attentive Observation.

We will suppose all to go on as well as usual, till the Third or Fourth Day from the Time of the Operation; you will then find the whole Surface of the Wound considerably enlarged, the Edge of it thickened and inflamed, and a large serous offensive Discharge. You are not able to separate much of the Lint, which has formed so firm an Adhesion as a large Suppuration only, continued for several Days, can easily remove: I am well convinced that most of the Matter, which forms in Cases where the Parts are so treated, is in Consequence of the Irritation of these Dressings, with which the

Wound

Wound is so injudiciously stuffed, and loaded by many Practitioners. As the Matter, which remains in the adherent Lint from Day to Day, must consequently increase in Acrimony, hence by its Stimulus, not only the Wound, but the whole System is disordered, and often a previous Hectic nourished by what is absorbed, and its topical Influence upon the Bone is such, as to make Exfoliation no uncommon Consequence of such Treatment.

Notwithstanding the Advantage of the double Incision, and the Treatment of the Parts, as now usually practised; a great Discharge, Exfoliation, a large Cicatrix, and a Sugar-Loaf Stump are often the Consequence of Amputation.

That this is not an ideal Picture, but a real Description of what the Author has frequently seen, during his Attention for several Years, to Patients treated in this Manner, those who continue such Treatment will readily believe.

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I will now bring into one View our established Mode of performing the Operation of Amputation on the Thigh, and the After-treatment, as practised in the *Liverpool Infirmary*.

Apply the Tourniquet as usual, and let an Assistant draw up the Skin and Muscles, by firmly grasping the Limb with both Hands, the Operator then makes the circular Incision as quick as possible through the Skin, and Membrana Adiposa, down to the Muscles: He next separates the cellular and membranous Attachments with the Edge of his Knife, till as much Skin is drawn back as will afterwards cover the Surface of the Stump with the most perfect Ease. The Assistant still firmly supporting the Parts as before, apply the Edge of your Knife under the Edge of the retracted Integuments, and cut obliquely through the Muscles upwards as to the Limb, and down to the Bone; or, in other Words, cut in such a Direction, as to lay the Bone bare about two or three Fingers Breadth higher than is usually done

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by the common perpendicular circular Incision, and continue to divide, or dig, out the Muscles all round the Limb, by guiding the Knife in the same Direction. The Part where the Bone is to be laid bare, whether two, three, or four Fingers Breadth higher than the Edge of the retracted Integuments, or in other Words, the Quantity of muscular Substance to be digged out, in making the double Incision, must be regulated by considering the Length of the Limb, and the Quantity of Skin that has been previously saved, by dividing the membranous Attachments. The Quantity of Skin saved, and muscular Substance taken out, must be in such an exact Proportion to each other, as that by a Removal of both, the whole Surface of the Wound will afterwards be easily covered, and the Length of the Limb not more shortened than is necessary to obtain this End. The Bone being now bare all round, is to be divided, as usual, with the Saw, and as high up as possible, which will be more easily executed, if the Retractor, recommended by *Gooch* and *Bromfield*, is first applied,

applied, for the Support and Defence of the soft Parts.

After the Removal of the Limb, let each bleeding Artery be gently drawn out with the Tenaculum, and tied with a common Ligature as naked as possible. The whole Surface of the Wound is now to be well cleaned with a Sponge and warm Water, as no doubt any Coagula remaining upon its Surface, or about the Interstices of the Muscles, would be a considerable Obstruction to that desired Union, which we have always in view through the whole Plan. Let the Skin and Muscles be gently brought forwards; then fix the Flannel circular Roller round the Body, and carry it two or three Times round the upper Part of the Thigh, where it will form a sufficient Basis, that will greatly add to the Support of the Skin and Muscles; then carry it forwards in a circular Direction till it arrives sufficiently near the Extremity of the Stump, where it is to be fastened as usual. You are now to place the Skin and Muscles over the Extremity of the Bone, in such a Direction,

that the Wound shall appear only as a Line, drawn down the Face of the Stump, terminating with an Angle, above and below, from the latter of which the Ligatures are to be left out, it being the most convenient and dependent part. The Skin is easily secured in this Posture, by long Slips of Linen, or Lint, about two Fingers Breadth, spread with Cerate, or any soft cooling Ointment, these are to be brought from Side to Side across the Face of the Stump; then apply over them a little soft Lint, with a Tow Pledget, and compress of Linen, the whole to be retained with a light Linen Roller *.

It is the usual Custom, to raise the End of the Stump from the Surface of the Bed, with Pillows; which appears to me very injudicious, when done to the Height commonly practised, as it draws the Posterior Muscles off the Face of the Stump. I find the best Direction is to raise the Stump about half a Hand's Breadth from the Surface of the Bed.

* Mr. Lyon first placed the Skin in this Direction, in an Amputation of the Thigh, and dressed with a dry linen cross Cloth, applied from Side to Side, next the Face of the Stump,

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When the whole of the Treatment has been agreeable to the foregoing Directions, the Parts are generally so free from Spasms, that the Use of Opium is not requisite; the Symptomatic Fever will likewise be equally moderate; and upon the third or fourth Day, when you change the Dressings, you will always find that the Discharge has been so small, as scarcely to have run through them: hence it is not often necessary to change the circular Bandage, at the first or second Dressing; I rather wish to avoid it, till the Adhesions are more compleat.

By a Continuance of the above simple Treatment, varied as Appearances indicate, the Cures have been always compleated in less Time than usual. In the Thigh the Stump has frequently healed in nineteen Days, so perfectly as to require no further dressing.

My last Amputation was on a Man about 44 Years old, in the Middle of the fore Arm, to remove carious carpal, and metacarpal Bones: the Operation was done July 10, 1779,

1779, and on the 24th of the same Month the Wound was perfectly healed, and the Patient discharged the Hospital on the 27th, the Cicatrix only a simple Line across the Face of the Stump from Side to Side, and his general Health so perfectly restored, that he walked Home from the Hospital (the Afternoon of the Day of his Discharge) which is 13 Miles distant.

The earliest unfavourable Symptoms subsequent to Amputation, are Spasms, and Hæmorrhage: as I should be highly blameable to arrogate any Merit that is not solely due to the Method I have recommended, it is but just to observe, that the Abatement of violent Spasms is principally due to the Vessels being drawn out and tied alone with the Tenaculum, as introduced into Practice by Mr. *Bromfield*, who most highly deserves the Thanks of every Well-wisher to Surgery for so useful and important an Improvement. I would rather have the Merit of this single Improvement, than the Vanity of being the Author of all the speculative and theoretical Volumes ever published.

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However, I may fairly observe, that the Spasms are certainly in some Degree prevented by an Exclusion of all extraneous Dressings.

Further, as stuffing the Parts full of, or even dressing with dry Lint, promotes Spasm, and dilates the whole Surface of the Wound, it must consequently conduce to produce Hæmorrhage, and upon this Point I speak solely from Experience: I have attended for the Space of seven Years to Amputations, where the Parts were treated with Dossils of dry Lint and Flour, and a subsequent Hæmorrhage was frequently the Consequence: and I can now most solemnly aver, that for the last nine Years I have treated the Parts nearly agreeable to these Directions, and that I have not seen a single Case of Hæmorrhage, subsequent to Amputation, neither have I heard of any where the Parts have been so treated.

The Hæmorrhage subsequent to Amputation, may not improperly be divided into two different

different Kinds, deduced from the Period of Time at which each occur, and their consequent Danger. The first I would call that which follows the Operation, within the Space of twenty-four Hours, and is, I believe, often occasioned by dilating the Wound with expanding Dressings. This is a very distressing Symptom both to the humane Operator, and Patient, as it requires a Removal of the Dressings, which have now formed a considerable Adhesion to the whole Surface of the Wound, and the separating them from the Extremities of the Nerves is more painful than any Part of an Amputation : and likewise the necessary Ligature upon Parts in the highest Degree of Irritation is a very disagreeable Business to execute, and most painful to suffer : however, this Kind of Hæmorrhage is seldom fatal, as we are commonly upon the Watch, and prepared to relieve it. The second Kind I would distinguish to be that which happens after the above Period ; and a most alarming Symptom it commonly proves, and has frequently ended fatally before it has been discovered, and consequently before any Remedy

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dy could be applied. It most frequently occurs, many Days after the Operation, when Digestion and Granulation are fully formed, and all Danger of this Kind is reasonably supposed to be over. In one Case where I attended, it happened three Weeks after the Operation. When the Skin is not placed over the Surface of the Wound, but, instead of this judicious Practice, the Wound is dilated with dry Lint, Nature ever active to relieve herself, forms a considerable Digestion, and consequent Granulation upon the whole Surface, by which the Dressings are separated and cast off. In some Habits these Granulations do not prove a sufficient Support to the Extremity of an Artery, they are not able to resist the Impetus of the circulating Fluid, which consequently bursts forth, and frequently exhausts the Patient before he is either aware of his Situation, or any Help can be obtained. I have known this Hæmorrhage happen when all the Ligatures have been cast off, and a Month after the Operation, when the Stump was half healed. Vid. two

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fatal Cases of this Hæmorrhage in *Bromfield's Surg. Obs.* Vol. I. p. 307.

As I have not either seen or heard of one of these Cases, where the Parts have been treated as here recommended, I have Reason to believe it will prove a very effectual Preventative, and every unprejudiced Judge will be immediately convinced, that the Extremities of the Vessels are more effectually supported by the Skin applied over the whole Surface of the Wound, and the consequent Union, than by keeping the Parts largely open, and procuring a Digestion, and in some Habits, a soft spongy Granulation over their Extremities.

The next train of Symptoms subsequent to Amputation, and the usual Treatment, are a large Discharge of Matter, Exfoliation, and Retraction of the Skin and Muscles, and consequently, what is called a Sugar-loaf Stump.

The Dilatation and Irritation of the Wound, occasioned by its being stuffed with
dry

dry Lint, the high Degree of inflammatory Tension, and large serous Discharge, are always consequently followed by a proportionably large Discharge of Matter, and this is promoted by what is retained in the Lint, still adherent to the Surface of the Wound. Its topical Effect here is not the Whole of the Evil, it becomes more acriminous, and is frequently absorbed into the Habit, in a State more prejudicial to the whole System, and these Circumstances make greatly against the Patient's recovery, particularly where the general Health has previously been greatly reduced, and the Amputation performed, to cut off the Seat of Absorbtion from Parts diseased by Caries and large Discharges, attended with Hectic, Cough, and other Symptoms of diseased Lungs.

The Application of dry Lint upon the Extremity of the Bone, with the consequent Retention of acrid Matter, and Exposure to the Influence of the Air, I consider as the principal Causes of Exfoliation, which is no unfrequent Consequence of such Treat-

ment. Sometimes only small Spiculæ separate, but oftener the Edge or Rim, all round the Extremity of the Bone. I have seen very large Portions of the Thigh Bone separate, in one Case nearly its whole Substance, and four Inches in Length. When the Pieces are small, and the Extremity of the Bone fully covered with Granulations, as they pass through, they produce pricking Pains in the Part, sometimes so violent as to disturb the Patient's Rest, attended with great Soreness, Inflammation, and increased Discharge; in others they pass without producing the least Inconvenience.

Since I have practised the Method of operating and dressing here recommended, I have not had the smallest Exfoliation, nor ever seen any Part of the Extremity of the Bone after the Operation; for by dividing the Muscles as advised, and bringing the Whole of the soft Parts forwards, the Bone is immediately concealed, and never gives the least Interruption to the Progress of the Cure.

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Likewise, as the Cicatrix is so small, *viz.* only a simple Line drawn across the Face of the Stump, the Parts are sooner capable of bearing the requisite Pressure from the Use of a wooden Leg, and are not so liable to break out again, as in those Cases where the Operation has been practised in the usual Manner, in which there is a larger Generation of new Flesh and Skin, which will remain tender for a much longer Space of Time.



PART

P A R T III.

On the Amputation of the Arm, at the Articulation with the Scapula.

IF you examine the Writings of the best Surgical Authors, you will find that but few, even in the greatest run of Practice, have amputated the Arm at its Articulation with the Scapula; and likewise be convinced that but little satisfactory Intelligence is to be obtained on this Subject, if we accept Mr. *Bromfield's* Information, which highly merits an attentive perusal.

Opportunities must have occurred, at all Times, and at all Ages, unfortunate diseased Subjects, with Caries in the Joint, and external Injuries from Gun-shot, compound Fractures, and Wounds of the large Blood-vessels, must have rendered the Necessity of operating as frequent as at present. Hence it may reasonably be inferred, that either a Dread of the Danger and Difficulty attending the Operation, or a Want of Judgment in selecting

lecting those Cases that required it, may be considered as the Causes why it was so seldom performed. And hence we may plainly discover why so small a Progress has been made towards rendering this Operation any thing like compleat: so that this Honor seems to have been reserved for Mr. *Bromfield*, a well known Author and Practitioner of the present Day. He is the only Author who has reduced the Operation to a regular Plan, and this not from Speculation, but actual Experience, the only true Source of solid Improvement.

However, it must be justly observed, that his Patients were all similar, viz. those whose original Disease was Abscess, or Caries, in the Neighbourhood of the Joint. He observes, as to the Operation, that he “ had but little Encouragement to do it at first, from those who had seen it performed repeatedly in the Army, where the Joint of the Shoulder had been greatly injured by Gun-shot, and Amputation at the Joint was the only Chance for preserving Life: for though the Opera-

Operations were seemingly well performed, and every thing went on to all Appearance well for near three Weeks, yet I am told the Patients all died," p. 209. It is much to be lamented, that the Mode of operating, and the unfortunate Progress of these Cases, have not been particularly noted, and faithfully communicated to the Public, as it is from such a Record of Facts only that any real Improvements can reasonably be expected. Where the History of them is totally lost Posterity reap no Improvement, nor are we able to distinguish whether these fatal Events were owing to a Want of Improvement in operating, or depended upon the dangerous Nature of the Injuries abstractedly.

It has however been my Lot to amputate the Arm at its Articulation with the Scapula, in a very unpromising Case of Gun-shot Wound, with Success: others may have done the same, but an accurate History of such an Event is not to be found in the Records of surgical Facts.

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As the State of the Parts to be divided in the Operation, were different from those in Mr. *Bromfield's* Patients, I thought myself justified in deviating in the Mode of operating.

Dan. Catling, a middle-sized, strong, healthy Man, is the Subject of the following History. On March the 4th, 1774, he was ramming a Cartridge down the Mouth of a Cannon that had been just fired; some Part of the Wadding yet alive in the Breech of the Gun, let off the new Charge, and having his right Arm opposite to the Mouth of the Gun, it blew him from aboard the Vessel into the River. He was taken out but half alive, and brought to the Infirmary. Upon Examination it appeared, that the right Arm, was carried off, high up, just below the the insertion of the deltoid Muscle, there-maining Bone and muscular Substance were so much injured, that in Consultation it was determined to amputate at the Articulation with the Scapula. The Skin was free from Laceration about the Joint, and even over the

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remaining injured Bone and Muscles; but considerable Extravasation appeared in the cellular Substance, upon the Pectoralis Major, Scapula, Clavicle, and adjacent Parts: the Eye-brows and Lashes were burnt off, and the Integuments upon the whole Face had suffered considerably: the Eyes were closed with the swelling of the Lids, the Pulse and Breathing tolerably good, but the Patient in an urgent State of Stupor, unless when considerably roused: in short he appeared the most miserable Object I had ever seen: his Face, the State of the Arm and adjacent Parts, the Stupor, and consequent Shock upon the whole Habit, rendered him a very unpromising Subject to operate upon, and yet there was no Alternative: the Pulse and Breathing were the only favourable Symptoms. The Operation must be done with the Disadvantage of Candle-light, and I had but little Time to form my Plan. I had read Mr. *Bromfield's* Account of his Operations very lately, and it then occurred to me, whether (in case of Gun-shot, or compound Fracture, with a wounded Artery, requiring this

this Operation, where the Motion of the Joint was free,) you could not reduce the Operation to a more simple form, as follows : Cut thro' the Skin and adipose Membrane, round the Arm, sufficiently below the Acromion, then go obliquely upwards, thro' the deltoid and posterior Muscles up to the Joint, then go forwards, and after dividing the Tendon of the Pectoralis Major, and adjacent Parts, separate and tie the Artery, which may be kept out of the Way by the Fingers of an Assistant, and the Head of the Bone taken out: if this cannot be easily executed for want of Room, the Parts must be divided in Front from the Acromion, but this last Step I would make an Act of Necessity. If this Scheme is practicable, the Operation will be rendered more simple, no Sutures required, and I would have, if possible, as much Skin saved as will afterwards cover the whole Surface of the Wound, and no Dressings applied within the Edges of the Skin, convinced that the Cure would be more speedily compleated by this Mode of Operation: and by leaving the Cure of the Wound more to Nature, and

not obstructing her Operations by the Intrusion of Dressings : in short, I should expect the Progress of the Cure would be in some Degree similar to our Success in common Amputations, where the Parts are treated in a similar Manner.

The Patient was placed upon a Table of a convenient Height, and the Shoulder brought off the Side, sufficiently to give Room for the Hand and Knife ; and a proper Pressure made upon the subclavian Artery, by the Fingers of a judicious Assistant ; a circular Incision was then made about a Hand's Breadth below the Acromion, and carried thro' the Skin and Membrana Adiposa, round the Arm ; the deltoid and posterior Muscles were then divided obliquely up to the capsular Ligament ; this was much facilitated by an Assistant drawing up the Skin with his Fingers. I then divided the Tendon of the Biceps and capsular Ligament, upon the anterior and posterior Part of the Joint : an Artery then discharged so freely, that we were convinced the Pressure upon the Subclavian was not effectual, altho' judiciously made ; there-

therefore I tied this Vessel, with the Assistance of the Tenaculum, and determined to finish the Operation in the following Manner: To divide the Tendon of the Pectoralis Major, the capsular Ligament all round, and the rest of the Parts, except the Artery, Veins, Nerves, and cellular Substance immediately adjacent; and as it was very difficult to distinguish these Parts so accurately, by so obscure a Light, as to be able to tie the Blood Vessels, and cut the Nerves higher up, I included the Whole in a temporary Ligature, held just tight enough to prevent Hæmorrhage: below this the Parts were divided, which finished the Operation, that is, separated the Limb: then the Artery and Veins were drawn out together with the Tenaculum, and included in the same Ligature, the temporary one was now removed.

The muscular and cellular Substance, when divided, thro' the whole Operation had a very unfavourable Appearance, being loaded with extravasated Blood; therefore, I took out as
much

much of the Whole as I could, and the same Indisposition about the Clavicle will perhaps account for the Pressure upon the Artery not being sufficient to restrain the Hæmorrhage: indeed, the Parts divided in the Operation appeared so bruised, that I thought a Gangrene would almost certainly follow.

A considerable Quantity of Skin was saved, so that when it was placed over the Muscles, and Acetabulum Scapulæ, the Wound had the Appearance of little more than a Line drawn from Side to Side, across the Face of the Stump, and the Ligatures were left out at the Angle next the Chest: long, narrow Slips of Lint, spread with a soft cooling Ointment, were applied longitudinally, from below upwards, so as to approximate the Lips of the Wound, and assisted by two long Pieces of sticking Plaister, the Whole supported with a Tow Pledget, Compress, and a light Flannel Roller. Directions were given that the Patient should take Broth, gentle Cordials, and Anodynes occasionally.

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The next Day I was surpris'd to find the Patient so well : he was restored to his Senses, the symptomatic Fever moderate, but complain'd greatly of the Soreness upon the Face, easy about the Shoulder, had taken Drinks freely, and what appeared very surpris'g, he had not the least Recollection of the Accident that had happened, nor of his having undergone an Operation. Ordered to have the Face constantly Moist with Linen-compresses dipped in the saturnine Water, that Stools should be procur'd by Clysters, that an antiphlogistic Plan of Diet and Medicine be rigidly us'd, and Anodynes occasionally.

It would be tedious and uninteresting, to recite the minute Appearance of each Dressing : therefore, let it suffice to observe, that on the ninth Day, he was in every Respect as well as I could reasonably expect : the Wound had a favourable Appearance, the Skin remained fix'd, nearly in the State it was plac'd after the Operation ; and the Discharge was a small Quantity of Matter, mix'd with a thin synovial Fluid : the extravasated Blood
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in the neighbouring Parts was absorbed daily, and the Face recovered likewise; the Patient was able to sit up most Part of the Day, and the Ligatures separated as soon as in a common Amputation. On the tenth Day he complained of Cold and Heat alternately, said he was ill, altho' he could not well tell what to complain of, his Indisposition was so slight. On the eleventh he appeared languid, the Countenance sunk, the Skin moist, cold, and clammy, the Wound pale and flabby, more disposed to open, and had gleeted largely. Whether these disagreeable Changes were owing to his living in the Air of the Infirmary, which at this Time was tainted by offensive Discharges from several spreading putrid Sores, and a full House, or to a Want of a more generous Regimen than he had as yet been allowed, I was rather at a Loss to determine. It had been often observed in this House, that our Sailors, and industrious Mechanics, whose Stations habit them to hard Labour, and the constant Use of strong Liquors, if they become the Subjects of compound Fractures, Amputation, or any important
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furgical Injury, attended with large Sores, they will not long be healthy under an anti-phlogistic Plan. Their Sores will certainly grow worse, and so will the State of their general Health, and these Evils are only to be remedied by an Indulgence in their former Habits. Free Air, Wine, Rum and Water mixed, Ale, animal Food in moderate Quantities, with the Bark, and Cordials, are the only Remedies.

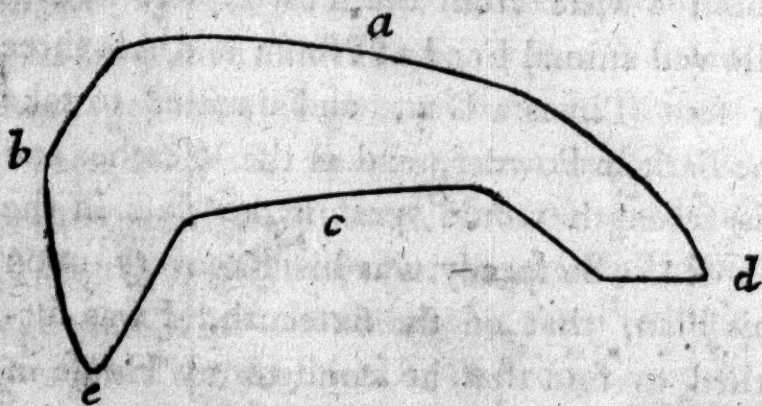
To obviate the Cause of foul Air, or the Want of a more tonic Regimen, I removed my Patient the next Day to the Park Coffee-house, an elevated, open, airy Situation, about a Mile from the Town; and he was allowed animal Food at Noon, and Ale three or four Times a Day, and directed to take the Bark in Powder, and as the Weather and his Strength would permit, to walk in the Garden. So speedy was his Recovery upon this Plan, that on the sixteenth, I was surprised to find that he came to my House in Town, to be dressed, and returned again on Foot, which was in all about four Miles.

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Both his general Health, and the Wound, improved daily: at the end of a Month from the Day of operating, the Wound was healed, except a small Opening, that would admit only the Head of a Probe, which passed up towards the Acetabulum Scapulæ, and discharged a synovial Fluid in small Quantities, and did not totally close for the Space of a Month longer, since which Time it has remained totally healed.

The Dressings were always applied as at the first, all external, and with a View to approximate the Edges of the Wound, which when healed, the Cicatrix was exactly the Size here represented.



a The Part next the Acromion, *b* next the Chest, *c* the Axilla, *d* the Angle next the Back, *e* the Angle where the Ligatures were left out.

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I do not mean to cast the least disrespectful Reflection upon Mr. *Bromfield's* Plan of operating and dressing: on the contrary, I think myself greatly obliged to him, for the Information I have received from his useful Publication upon this Subject: my Patient's Case, and those that he operated upon, differed materially, and consequently each may, with Propriety, admit of a different Treatment.

It would be misleading the Public, not to confess, that altho' I accomplished my Point, with only a circular Incision, yet it was executed with some Difficulty; for the Division of the capsular Ligament would have been greatly facilitated, by the more easy Access to the Part, which would have been produced by a longitudinal Incision, from the Acromion, thro' the Skin and deltoid Muscle. On the contrary, when we consider the Advantages gained by excluding the external Air, as much as possible; in many of the most important surgical Cases, for Instance in compound Fractures, in opening large
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deep seated Abscesses by a Seton, the radical Cure of the Hydrocele by Seton, the speedy Cures made by placing the Skin over the whole Surface of the Wound after Amputation, and the favourable Termination of *Dan. Catling's* Case ; these Reflections will make us anxious to finish the Operation, where it can be done with tolerable Ease, without the longitudinal Incision along the deltoid, by which the Air would find more easy Access into the Cavity of the Wound, and Acetabulum Scapulæ. Perhaps the free Access of Air into the Joint, may reasonably be considered as one Cause of the Exfoliation of the Cartilage, but a more powerful one is the Application of dry Lint within the Acetabulum Scapulæ ; which, by forming an Adhesion, and consequently a Retention of Matter upon the Part from Day to Day, will, I am of Opinion, more certainly occasion an Exfoliation of the Cartilage, in this Instance, than it does of the Bone after Amputation.

Mr. *Bromfield* lays it down as a general Rule, that the Cartilage will exfoliate in every

ry Instance: Pag. 244, speaking of *Heister's* Advice, to attempt a Union by the first Intention; he adds, "but he has forgot, that in Case the Head of the Scapula is found, that the Cartilage will prevent the Union, till it is exfoliated:" and from this Opinion he regulates his Practice: and p. 254, directs you to "pare off the Cartilage, and apply dry Lint to the Bone, and let it remain till it drops off; and probably the Granulations will then shew themselves sprouting from the Bone." This may be a necessary and judicious Practice, where Matter has previously lodged in the Joint, and occasioned such an Alteration in the Texture of the Parts, that Exfoliation of Bone or Cartilage will consequently follow: But that in recent Injuries, the Cartilage will not always exfoliate, my Patient's Case furnishes a Proof, and if instead of dressing the Wound to the Bottom with dry Lint, the Skin is placed as I have directed, and the Dressings all applied exterior to the Wound, the Exfoliation of Bone or Cartilage will be frequently prevented; and Nature, not teized and interrupted by Art, will do Wonders in
speedily

speedily filling up and contracting the Wound. As I was necessitated to operate by Candle-light, I could not distinguish the minute Parts so exactly as would have rendered the Progress thro' the Operation more pleasing to me; therefore, altho' the Artery was left long, agreeable to Mr. *Bromfield's* Direction, I durst not divide the Nerves higher: yet the Evils which such Treatment is intended to obviate, was effectually prevented, by the Plan of dressing the Wound, the Nerves being covered by the old Skin.

The Patient is now in the most perfect Health, which he has enjoyed ever since the Wound healed; he is employed at the Custom House in this Town, and capable of going thro' the necessary Fatigue of his Station, by which he earns a comfortable Livelihood.



POST-

P O S T S C R I P T.

SINCE the foregoing Sheets were finished, I have heard of one Instance, where Hæmorrhage followed our Treatment; but it was from the whole Surface of the Stump: and I am now in Consultation upon a similar Case, after an Amputation in the fore Arm, occasioned by a compleat Sphacelus of the Hand after a compound Fracture above the Wrist: as this Kind of Hæmorrhage is a consequence of a peculiarly diseased State of the whole System, it cannot be certainly prevented by a topical Treatment of the Wound.

I am now of Opinion, that, in general, it is the most judicious, to place the Skin so as to form the Line across the Face of the Stump, from Side to Side, the Discharge is so small, that a depending Drain is not a necessary Object: the Ligatures are the most conveniently left out at the inner Angle, in the Arm and Thigh, on account of the Vicinity of the great Artery, in the fore Arm and Leg, they may be left out at either Angle. The Patient should be directed to keep out of Bed every Day after the first Dressing, as long as his Strength will permit, which will considerably restore and preserve his general

neral Health; the usual Mode of confining the Patient to Bed will sometimes produce or continue hectic Fever, Debility, Diarrhoea, &c.

Those who have had this Plan of Treatment described to them, object to it, upon a Supposition that the Ligatures will be troublesome, and get fixed in the Part; however, Experience is the best Guide in these Matters; the Ligatures, when made as here directed, have always sufficiently secured the Vessels, separated easily and speedily, nor have I seen one Instance, where the Cures have been protracted by them.

I am far from thinking that the Operation and After-treatment, will not yet admit of further Improvements, in the Hands of the judicious and candid Practitioner; however, if he has the Success, upon a Trial of the Means here recommended, that has attended their Use under my Observation, I hope it will appear, that I have not either misapplied my Time, or mislead the Public.

T H E E N D.

